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TITLE: System and method for positioning an electronic portal imaging device

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INVENTOR-INFORMATION:

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CLAIMS:

What is claimed is:

1. A portal imaging device positioning apparatus attachable to a radiation therapy device gantry, comprising: a support attachable to said gantry; a vertically-adjustable portal imaging device positioner attachable to said support, said portal imaging device positioner operable in a first mode and a second mode, wherein in said first mode said portal imaging device positioner maintains an imaging panel in position to receive radiation passing through a body maintained in a patient plane, and wherein in said second mode portal imaging device positioner maintains said imaging panel to receive radiation substantially at said patient plane; and a graphical user

interface adapted to
control deployment of said portal imaging device positioner.

2. A portal imaging device positioning apparatus according to claim 1, said
graphical user interface adapted to display movements of said portal imaging
device positioner and said gantry.

3. A portal imaging device positioning apparatus according to claim 2, further
including a controller adapted to define a boundary for an radiation field and
determine if an extent of said boundary exceeds an extent of a boundary of an
imaging area.

4. A portal imaging device positioning apparatus according to claim 1, said
graphical user interface adapted to allow a user to adjust a position of the
imaging panel using buttons with symbols labeled to indicate a direction of
motion.

5. A portal imaging device positioning apparatus according to claim 4, said
graphical user interface adapted to store multiple configurations of said
imaging panel and automatically move the imaging panel to the stored
configuration.

6. A radiation therapy device, comprising: a linear accelerator for providing
radiation to a body; and an electronic portal imaging device operably coupled
to said linear accelerator; and a control unit including a user interface and
adapted to control deployment of an imaging panel of said electronic portal
imaging device from a substantially vertical position to a substantially
horizontal position.

7. A radiation therapy device according to claim 6, said user interface
adapted to allow a user to adjust a position of the imaging panel using buttons
labeled with symbols to indicate a direction of motion.

8. A radiation therapy device according to claim 7, said

control unit adapted
to store multiple configurations of said imaging panel and automatically move
the imaging panel to the stored configuration.

9. A radiation therapy device according to claim 6, further including a
controller adapted to define a boundary for a radiation field and determine if
an extent of said boundary exceeds an extent of a boundary of an imaging area.

10. A radiation therapy device according to claim 9, said control unit adapted
to interface to a gantry control unit and display using said graphical user
interface motions of said gantry and said portal imaging device.

11. A method for providing a portal imaging device positioning apparatus
attachable to a radiation therapy device gantry, comprising: providing a
support attachable to said gantry; providing a vertically-adjustable portal
imaging device positioner attachable to said support, said portal imaging
device positioner operable in a first mode and a second mode, wherein in said
first mode said portal imaging device positioner maintains an imaging panel in
position to receive radiation passing through a body maintained in a patient
plane, and wherein in said second mode portal imaging device positioner
maintains said imaging panel to receive radiation substantially at said patient
plane; and providing a graphical user interface adapted to control deployment
of said portal imaging device positioner.

12. A method according to claim 11, said graphical user interface adapted to
display movements of said portal imaging device positioner and said gantry.

13. A method according to claim 12, further including providing a controller
adapted to define a boundary for a radiation field and determine if an extent
of said boundary exceeds an extent of a boundary of an imaging area.

14. A method according to claim 11, said graphical user interface adapted to
allow a user to adjust a position of the imaging panel using buttons with
symbols labeled to indicate a direction of motion.

15. A method according to claim 14, said graphical user interface adapted to
store multiple configurations of said imaging panel and automatically move the
imaging panel to the stored configuration.

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CLAIMS:

What is claimed is:

1. A portal imaging device positioning apparatus attachable to a radiation therapy device gantry, comprising: a support attachable to said gantry; and a vertically-adjustable portal imaging device positioner attachable to said support, said portal imaging device positioner operable in a first mode and a second mode, wherein in said first mode said portal imaging device positioner maintains an imaging panel in position to receive radiation passing through a body maintained in a patient plane, and wherein in said second mode portal imaging device positioner maintains said imaging panel to receive radiation substantially at said patient plane.

2. A portal imaging device positioning apparatus according to claim 1, said vertically-adjustable portal imaging device positioner including: a vertical drive unit adjustably attachable at a mounting cavity to said support; and a mounting unit adjustably attachable to said vertical drive unit, and adapted to deploy said imaging panel from a vertical position to a horizontal position.

3. A portal imaging device positioning apparatus according to claim 2, wherein said vertical drive unit is adjustable in said first mode such that a top of said support is substantially adjacent a top of said mounting cavity, and adjustable in said second mode such that a bottom of said support is substantially adjacent a bottom of said mounting cavity.

4. A portal imaging device positioning apparatus according to claim 3, wherein said imaging panel is adapted to be temporarily secured to said support during an adjustment from said first mode to said second mode.

5. A portal imaging device positioning method, comprising: adjusting an imaging panel operably secured to a radiation therapy device gantry from a first position in a first mode below a patient plane to a second position in a second mode at a patient plane.

6. A method according to claim 5, said adjusting comprising: temporarily securing a vertically positioned imaging panel to a support; temporarily unsecuring a main drive assembly from said support; adjusting said main drive assembly to said second position; re-securing said main drive assembly; and unsecuring said vertically positioned imaging panel.

7. A method according to claim 6, said adjusting comprising: adjusting said vertical drive unit in said first mode such that a top of said support is substantially adjacent a top of a mounting cavity on said vertical drive unit;

and adjusting said vertical drive unit in said second mode such that a bottom
of said support is substantially adjacent a bottom of said mounting cavity.

8. A method according to claim 7, further comprising horizontally deploying
said imaging panel after said imaging panel has been adjusted to said second
position.

9. A portal imaging system, comprising: a radiation delivery apparatus; and
means for deploying an imaging panel in a first mode to receive radiation from
said apparatus below a patient plane and in a second mode at said patient
plane.

10. A system according to claim 9, said deploying means comprising: a vertical
drive unit adjustably attachable at a mounting cavity to a support; and a
mounting unit adjustably attachable to said vertical drive unit, and adapted to
deploy said imaging panel from a vertical position to a horizontal position.

11. A system according to claim 10, wherein said deploying means further
comprises means for adjusting said vertical drive unit in said first mode such
that a top of said support is substantially adjacent a top of said mounting
cavity, and in said second mode such that a bottom of said support is
substantially adjacent a bottom of said mounting cavity.

12. A system according to claim 11, comprising: means for temporarily securing
said imaging panel to said support; and means for temporarily unsecuring a
main drive assembly from said support.

13. A portal imaging device method, comprising: providing a support attachable
at a first end to a treatment gantry; and providing a vertically-adjustable
portal imaging device positioner, said portal imaging device positioner
operable in a first mode and a second mode, wherein in said first mode said

portal imaging device positioner maintains an imaging panel in position to receive radiation through a body maintained in a patient plane, and wherein in said second mode portal imaging device positioner maintains said imaging panel to receive radiation at said patient plane.

14. A method according to claim 13, said vertically-adjustable portal imaging device positioner including: a vertical drive unit adjustably attachable at a mounting cavity to said support; and a mounting unit adjustably attachable to said vertical drive unit, and adapted to deploy said imaging panel from a vertical position to a horizontal position.

15. A method according to claim 14, wherein said vertical drive unit is adjustable in said first mode such that a top of said support is substantially adjacent a top of said mounting cavity, and adjustable in said second mode such that a bottom of said support is substantially adjacent a bottom of said mounting cavity.

16. A method according to claim 15, wherein said imaging panel is adapted to be temporarily secured to said support during an adjustment from said first mode to said second mode.